

REMARKS

Claims 1-30 and 32-41 are pending in the application. Claims 1-28 were rejected. Claims 5 and 18 were objected to. Claims 29, 30 and 32-41 have been withdrawn from consideration by the Examiner as drawn to a non-elected invention. Claims 1, 7, 8, 18, 21, 22 and 27 have been amended. Claims 4, 5, 11, 12 and 28 have been canceled.

Restriction/Election

The Examiner has restricted the application into three separate inventions: Group I, claims 1-28, drawn to microreactors; Group II, claims 29, 30 and 32-34, drawn to a method of forming a microreactor; and Group III, claims 35 41, drawn to a method of operating a microreactor.

The provisional election to prosecute Group I, claim 1-28 is affirmed. In order to expedite prosecution, this election is now made without traverse.

Objections to the Specification, Abstract and Drawings

The specification and abstract have been amended in accordance with the Examiner's suggestions. The drawings and corresponding portions of the specification and/or claims have been amended to address the Examiner's objections. In particular, reference numbers and blocks representing components described in the specification have been added to Fig. 2A and the corresponding reference numbers have been added to the text of the specification in the appropriate places. Since the added component blocks were described and claimed in the application as filed, no new matter is added. Claim 21 has been amended in accordance with the description, for example at paragraphs [0013] and [0014] to obviate the issue with respect to that claim. A replacement sheet for Fig. 2A is submitted herewith. Withdrawal of the objections is therefore respectfully requested.

Claim Objections

The objections to claims 5 and 18 have been addressed in accordance with the Examiner's suggestions. Accordingly, withdrawal of the objections is respectfully requested.

Rejections under 35 U.S.C. §112

Claims 10, 18 and 25 have been amended to address the antecedent basis issues noted by the Examiner. In addition, amendments to claims 7 and 8 have been made where similar issues were noted. Accordingly, withdrawal of the objections is respectfully requested.

Rejections under 35 U.S.C. §§102 and 103

Claims 1-4, 7-9, 11-16, 19, 21-24, 27 and 28 were rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,961,930 to Chatterjee et al. ("Chatterjee"). Claims 1, 7, 13 and 14 28 were rejected under 35 U.S.C. 102(b) as being anticipated by DE 198 41 993. Claims 1-16, 19 and 21-28 28 were rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,569,553 to Koripella et al. ("Koripella"). Claims 17, 18 and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over either Chatterje or Koripella.

In order to simplify the issues in an effort to expedite the present prosecution, Applicants propose to focus on a specific embodiment of the present invention in which the claimed microreactor has a silicon substrate material and a catalytic microcombustion integrated heater (chemical heater). Independent claims 1 and 22 have been amended and claims 4, 5, 11, 12 and 28 have been canceled accordingly. These amendments and claim cancellations are made without prejudice to subsequent reintroduction of these claims or of the subject matter to which they are directed in this or a continuation or divisional application. Applicant expressly reserves the right to file such additional applications to further prosecute subject matter disclosed in the present application.

As noted by the Examiner, both Chatterjee and DE 198 41 993 teach devices having integrated resistive heaters. Accordingly, it is respectfully submitted that, in view of the amendment of the claims to recite integrated catalytic microcombustion heaters, the pending claims are not anticipated by these references and withdrawal of the rejections under 35 U.S.C. 102 are respectfully requested.

Koripella teaches a fuel processor based on a particular multi-layer ceramic substrate technology. Accordingly, it is respectfully submitted that, in view of the amendment of the claims to recite a silicon substrate material, the pending claims are not anticipated by this reference and withdrawal of the rejections under 35 U.S.C. 102 are respectfully requested.

With regard to the rejections under §103: The Examiner notes that Chatterjee and DE 198 41 993 teach only integrated resistive heaters, with no mention of chemical heaters; and the fuel processor of Koripella is consistently explicitly described with reference to its particular ceramic substrate material and there is no suggestion whatever of the use of an alternative substrate, such as the presently claimed silicon substrate. These differences between the cited art

and the presently claimed invention are fundamental and incorporated by claims 17, 18 and 20 which depend directly or indirectly from claim 1. Thus, it is respectfully submitted that the cited references fail to teach or suggest the presently claimed invention, including those aspects claimed in claims 17, 18 and 19, for at least the reasons noted above and withdrawal of the rejections under 35 U.S.C. 103 is respectfully submitted.

Accordingly, for at least the reasons noted above, it is respectfully submitted that all pending claims are allowable over the cited references and withdrawal of the rejections under 35 U.S.C. 102 and 103 is respectfully requested.

Conclusion

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below. If any additional fees are due in connection with the filing of this amendment, the Commissioner is authorized to charge such fees to Deposit Account 12-0695 (Order No. IL-10634).

Respectfully submitted,



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